

The THREDDDS, The LAS Security and The Wardrobe

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The Voyage of the FDS

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What's in Store

- Access control and LAS
 - Current capabilities
 - (Potential) Future Plans
- THREDDS and LAS
 - Current capabilities
 - Future plans
- FDS and LAS
 - Current capabilities
 - Future plans

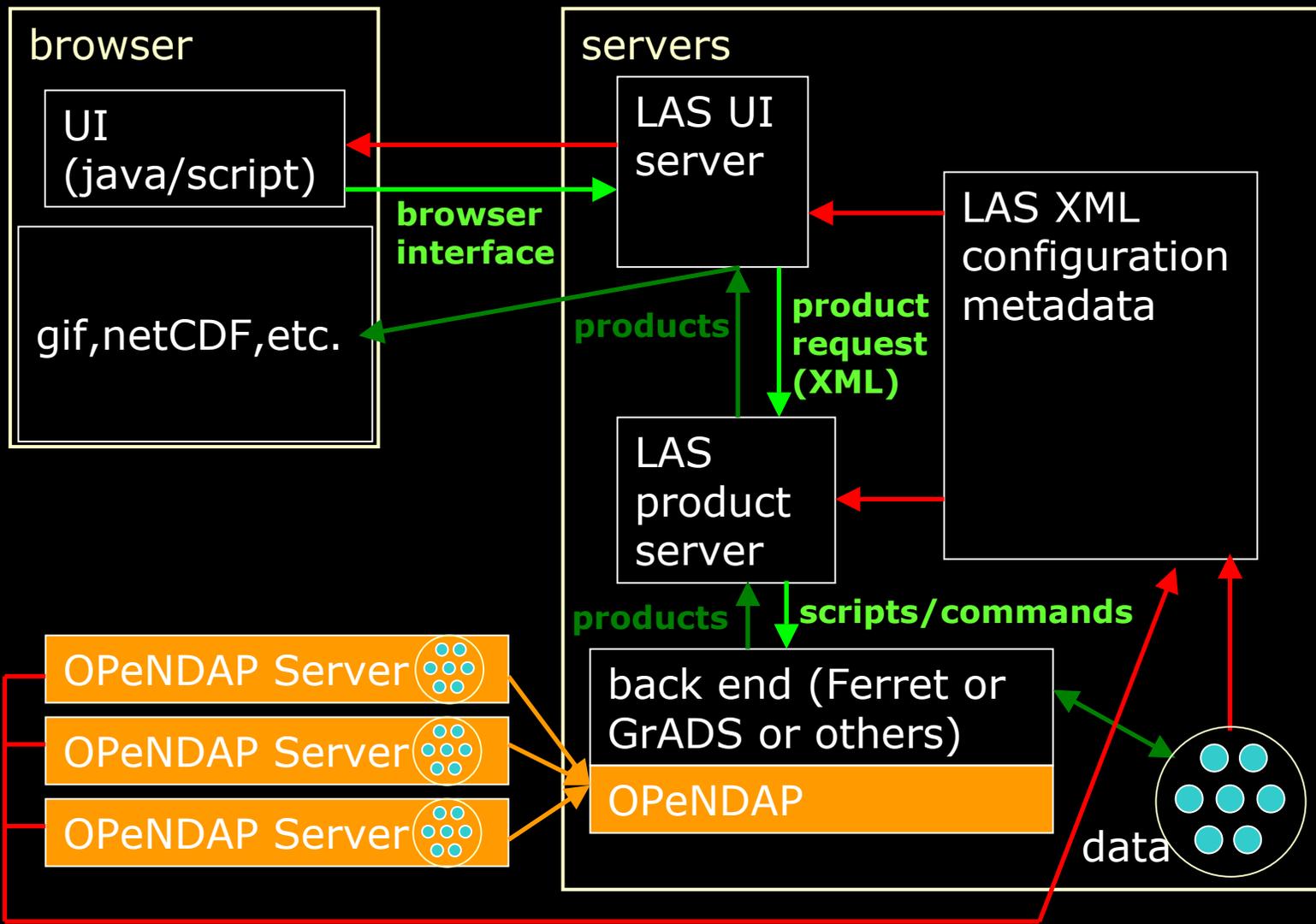
The Live Access Server (LAS)

A highly configurable Web server designed to provide flexible access to geo-referenced scientific data

The screenshot displays the Live Access to the National Virtual Ocean Data System (NVODS) web interface. The main window shows the following components:

- Navigation and Search:** A search bar at the top with the address `http://ferret.pmel.noaa.gov/NVODS/servlets/constrain?var=2739`.
- Left Sidebar:** A menu with options: "single data set", "compare two", "Datasets", "Variables", "Constraints", "Output", "Output Options", "Previous Output", "Define variable", and "About".
- Main Content Area:**
 - Dataset selection: "by Serving Institution (COLA GDS, FSU COAPS, IPRC-SOEST, IRI/LDEO, ...) > IRI ENSO forecast LDEO1".
 - Variable(s): "SSTA forecast (03 month lead)".
 - Instructions: "Select your desired view (geometry of output) and output (type of product). Then region (lon-lat-depth-time) and any additional constraints."
 - Configuration fields:
 - Select view: "xy (lat/lon) slice"
 - Select output: "Shaded plot (GIF)"
 - Select region: "Full Region" with a "Go" button and a link "Don't use map applet".
 - Map: A small map showing the selected region in the Pacific Ocean.
 - Coordinates: "29.0 N", "124.0 E", "29.0 S".
 - Buttons: "Zoom In" and "Zoom Out".
 - Select time: "16", "Jan", "1983", "16-Jan-1983".
- Overlaid Windows:**
 - A line plot showing "SSTA (degC)" from 1980 to 2000, with a red line fluctuating between approximately -1.0 and 1.6.
 - A contour plot of "SSTA (degC)" showing a large positive anomaly (red/yellow) in the central Pacific.
 - A data table window showing the output for the selected parameters, including longitude, latitude, and time series data.

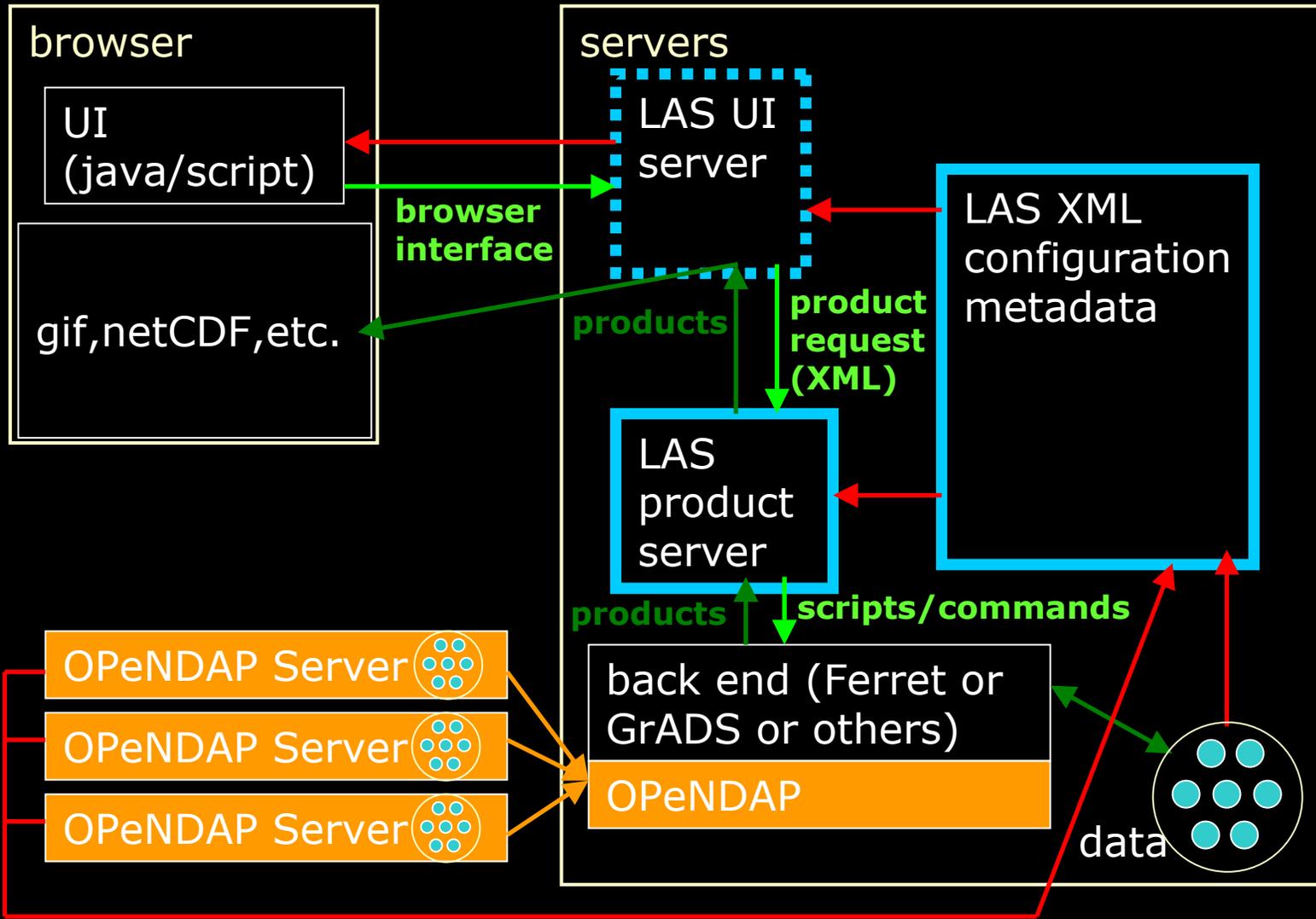
LAS Architecture with OPeNDAP



Andrew's Group-Based Access Control

- Based on the LAS "options" mechanism
- XML additions to identify restricted data set and/or variable
- User Interface additions for "access options"
- Product server modifications to "authenticate" access
- Allows access control by data set, variable and operation

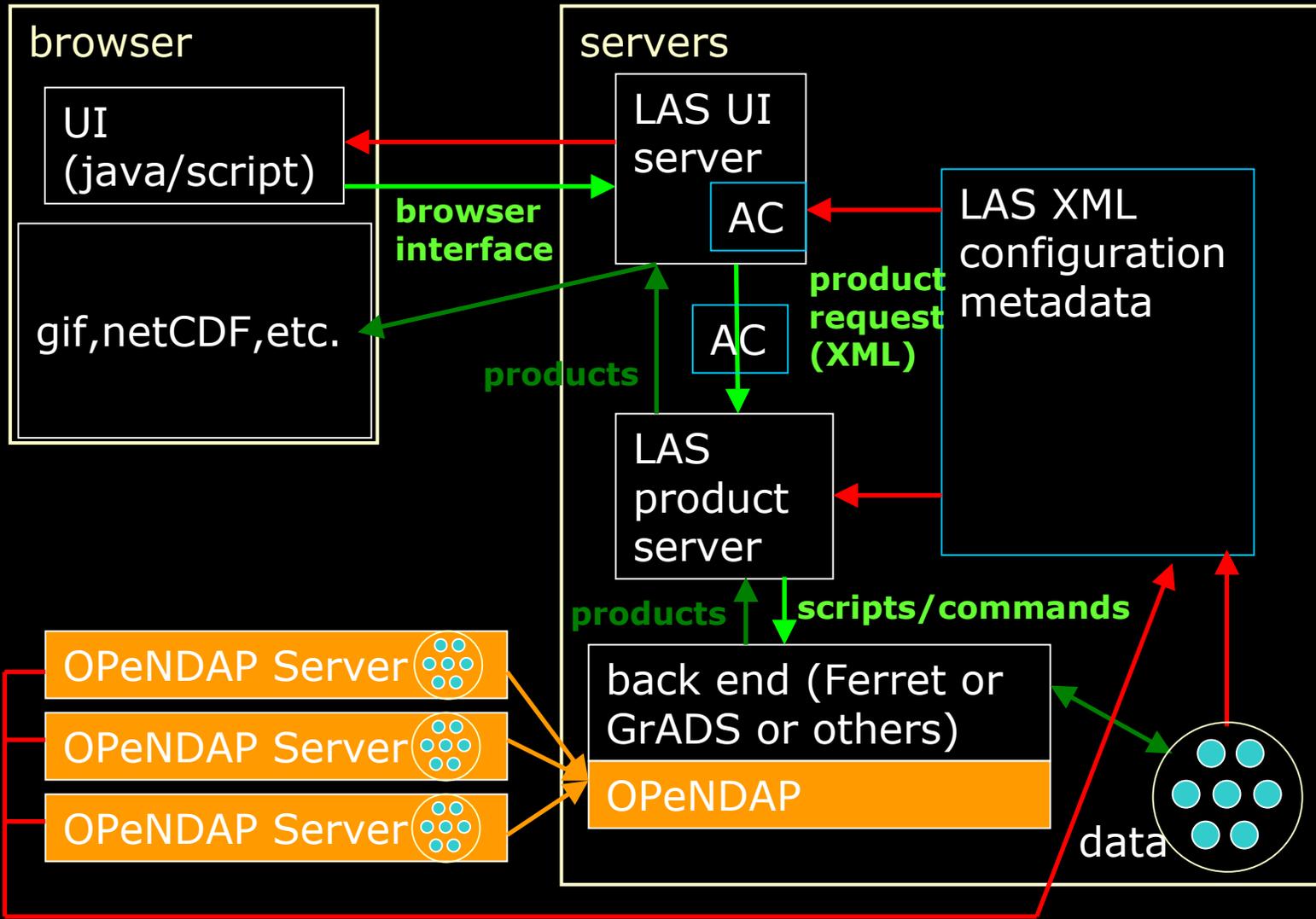
Access Control



A Slightly Different Approach

- Why?
 - I like writing Java better than Perl

A Slightly Different Approach



A Slightly Different Approach

- Same XML mods (or new XML)
- Want to:
 - Leave product server code unchanged
 - “Lock down” product server to talk only to Access Control Servlet
 - Authenticate with existing Tomcat mechanisms (Realms and session ids)
 - If possible filter UI presentation of data sets/variables to only those authorized

A Slightly Different Approach

■ Why?

- Product server development can continue without regard to access control
- Servlet approach uses of “more robust” and “continually improving” Java-based authentication mechanisms
- Easier to create installations which allow access control to be toggled on and off

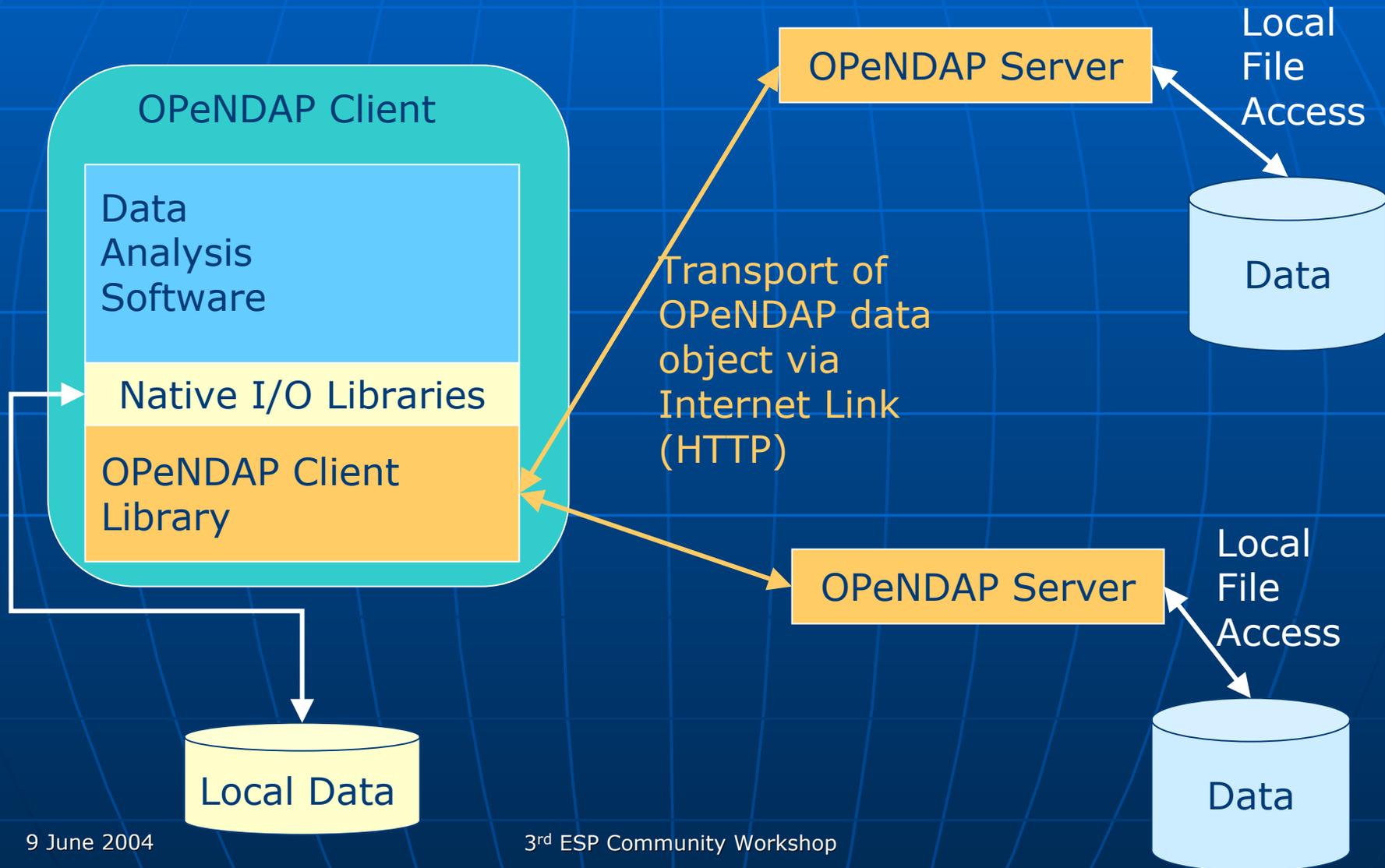
LAS and FDS

Yonghua Wei
Richard Rogers

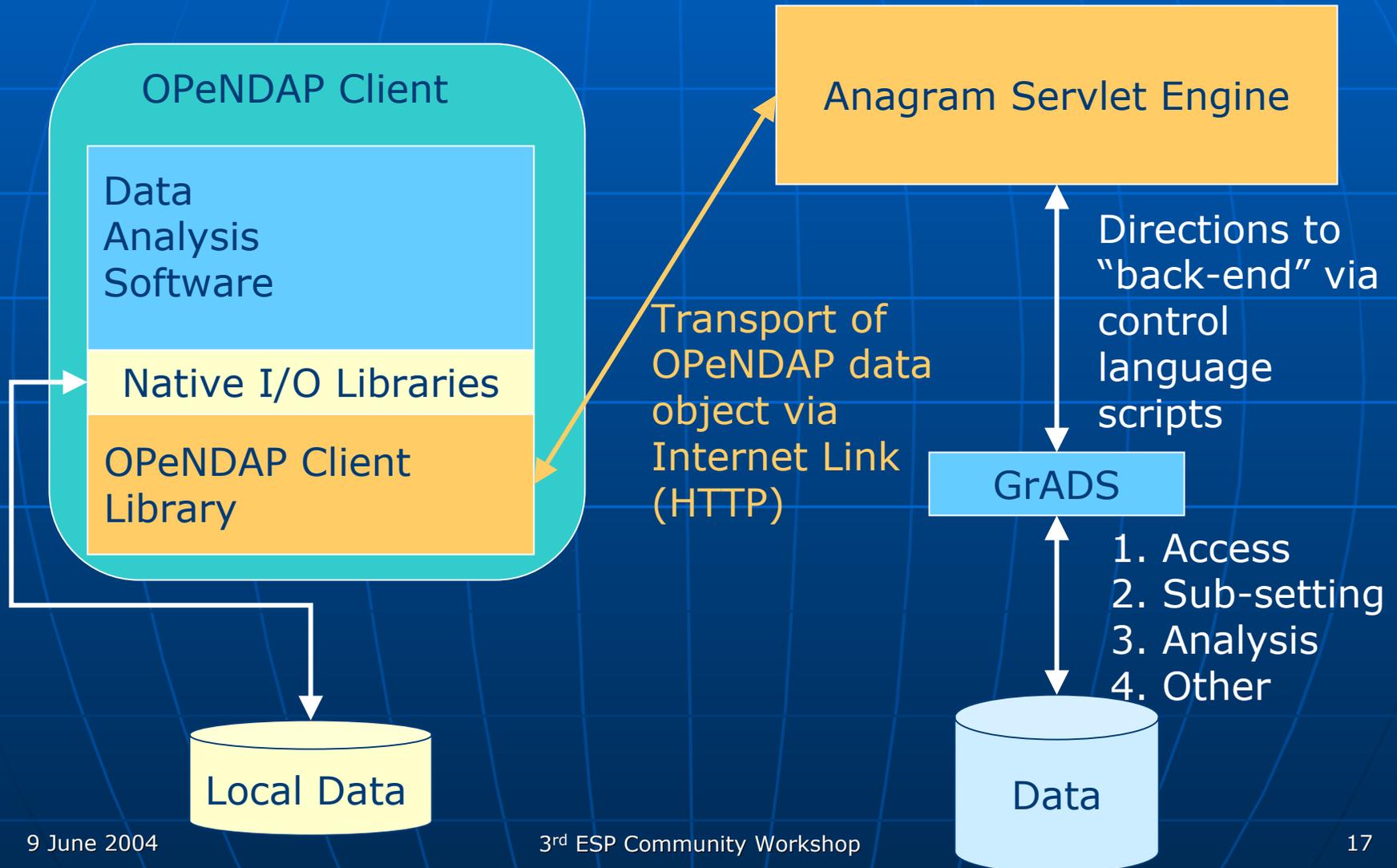
Ferret Data Server

- FDS is an OPeNDAP server based on the GrADS Data Server and implemented using the Anagram framework developed at COLA

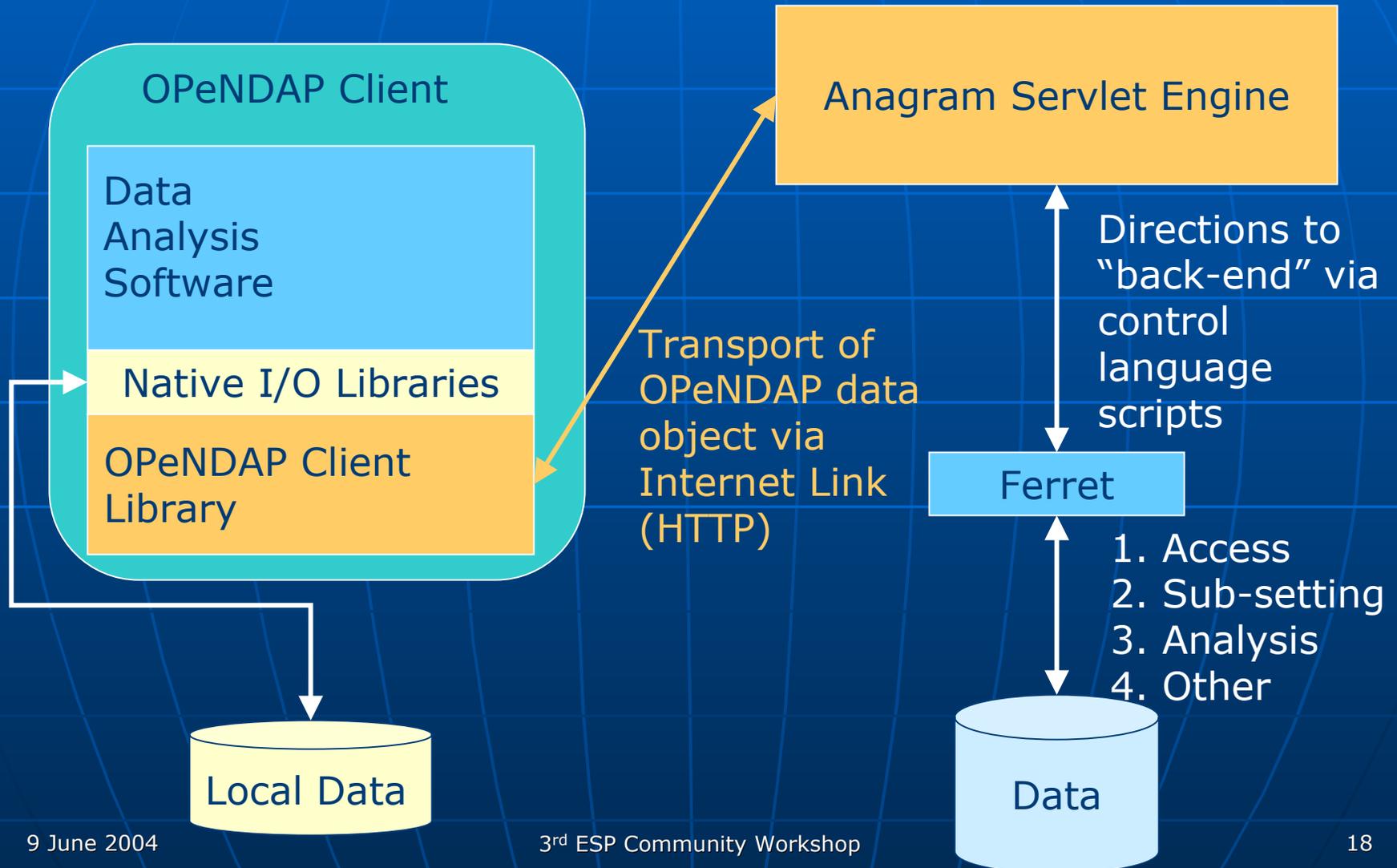
Review: What is OPeNDAP?



Anagram-based OPeNDAP Server



FDS



Ferret Data Server (FDS)

- FDS is an OPeNDAP server implementation (based on Anagram)
- FDS has some extended capabilities (similar to GDS)
- Code is under development and in alpha testing

Extended Capabilities of FDS

- Create and serve data sets as result of an analysis operation on-the-fly
- Add or modify inadequate metadata
- Fix coordinate system deficiencies
 - Missing axes
 - Axes reordering
 - Corrupted coordinates
- Aggregate time-series files into one URL
- Embed analysis requests into URL

LAS and THREDDDS

THREDDS Catalogs

- XML Documents
- Logical directories of on-line data resources with annotations and other metadata
- Allow THREDDS-enabled customers to find out what data is available from data providers
- Can be static documents distributed via a Web server
- Can be dynamic “front ends” to large data collections

LAS and THREDDDS

- Every LAS installation can present a Dataset Inventory Catalog of the underlying data sets and variables
- Presents “canonical form” of data set and variable rather than “categories”
- Needs to be upgraded to 1.0 Schema
- Needs correct service type for both LAS operations and FDS services

LAS, THREDDS and FDS

- All of the data behind an LAS installation has been “regularized”
- THREDDS client can request any LAS product (e.g. plots)
- Subsets can be defined via geographic and time constraints

LAS, THREDDS and FDS

- LAS will have an FDS OPeNDAP URL as an output product so **any** sub-set of **any** LAS data set can become an OPeNDAP data set on-the-fly via FDS

Now back to reality...